

L Number	Hits	Search Text	DB	Time stamp
14	231	901/40.ccls. and vacuum	USPAT; EPO; JPO	2004/01/22 11:08
15	63	(901/40.ccls. and vacuum) and (tray carrier nest fixture)	USPAT; EPO; JPO	2004/01/22 11:13
16	124	414/416.09,416.12,752.2.ccls. and (tray carrier nest fixture)	USPAT; EPO; JPO	2004/01/22 11:21
17	192	294/64.1.ccls. and (tray carrier nest fixture)	USPAT; EPO; JPO	2004/01/22 11:33
18	4	5589029.URPN.	USPAT	2004/01/22 11:27
19	3	("4850780" "4859269" "5348316").PN.	USPAT	2004/01/22 11:29
20	4	3637249.URPN.	USPAT	2004/01/22 11:32
21	0	4553661.URPN.	USPAT	2004/01/22 11:32
22	0	4553661.URPN.	USPAT	2004/01/22 11:33
23	531	269/21,289,292,900,903.ccls. and (tray carrier nest fixture)	USPAT; EPO; JPO	2004/01/22 11:44
24	267	(269/21,289,292,900,903.ccls. and (tray carrier nest fixture)) and vacuum	USPAT; EPO; JPO	2004/01/22 11:34
25	71	451/364.ccls. and (tray carrier nest fixture)	USPAT; EPO; JPO	2004/01/22 11:44
-	1	substrate adj alignment.ti. and anthony.in.	USPAT; US-PGPUB; EPO; JPO	2004/01/16 11:13
-	58	substrate adj alignment.ti.	USPAT; US-PGPUB; EPO; JPO	2004/01/16 11:13
-	49	substrate adj alignment.ti.	USPAT; EPO; JPO	2004/01/17 16:38
-	18	substrate with tray and vacuum and lift and pick\$3 with plac\$3	USPAT; EPO; JPO	2004/01/17 16:40
-	1	(hole depression) with tray and plate with protrusion and vacuum and lift and pick\$3 with plac\$3	USPAT; EPO; JPO	2004/01/17 16:41
-	1	(hole depression) with tray and plate with protrusion and vacuum and pick\$3 with plac\$3	USPAT; EPO; JPO	2004/01/17 16:41
-	3	(hole depression) with tray and plate with protrusion and vacuum with nozzle	USPAT; EPO; JPO	2004/01/17 16:46
-	2	29/\$.ccls. and tray with hole and plate with protrusion	USPAT; EPO; JPO	2004/01/17 16:47
-	9	substrate and tray with hole and plate with protrusion	USPAT; EPO; JPO	2004/01/17 16:48
-	87	substrate and tray and plate with protrusion	USPAT; EPO; JPO	2004/01/17 16:49
-	16	(substrate and tray and plate with protrusion) and vacuum	USPAT; EPO; JPO	2004/01/17 16:50
-	6	tray and vacuum adj pad and semiconductor and substrate	USPAT; EPO; JPO	2004/01/17 16:51
-	36	tray and vacuum adj (nozzle pad) and substrate	USPAT; EPO; JPO	2004/01/17 16:54
-	105	carrier and vacuum adj (nozzle pad) and substrate	USPAT; EPO; JPO	2004/01/17 16:54
-	15	carrier with hole and vacuum adj (nozzle pad) and substrate	USPAT; EPO; JPO	2004/01/17 16:55
-	3296	carrier with hole and align\$4 and substrate	USPAT; EPO; JPO	2004/01/17 17:09
-	262	(carrier with hole and align\$4 and substrate) and protrusion	USPAT; EPO; JPO	2004/01/17 16:56
-	231	((carrier with hole and align\$4 and substrate) and protrusion) and mount\$3	USPAT; EPO; JPO	2004/01/17 16:57
-	4	("4401234" "4548667" "4889229" "4965927").PN.	USPAT	2004/01/17 17:02
-	6	("4427481" "4548862" "5019944" "5045249" "5543585" "5962815").PN.	USPAT	2004/01/17 17:05

-	364	carrier with hole and align\$4 and pick\$3 with plac\$3	USPAT; EPO; JPO	2004/01/17 17:09
-	4	(carrier with hole and align\$4 and pick\$3 with plac\$3) and plate with protrusion	USPAT; EPO; JPO	2004/01/17 17:10
-	40	(carrier with hole and align\$4 and pick\$3 with plac\$3) and vacuum with (nozzle pad)	USPAT; EPO; JPO	2004/01/17 17:14
-	2	("4256532" "5880017").PN.	USPAT	2004/01/17 17:12
-	16	5880017.URPN.	USPAT	2004/01/17 17:12
-	1935	align\$4 and (tray carrier) with (hole depression cavity) and vacuum and (mount mounting mounted) and device	USPAT; EPO; JPO	2004/01/17 17:16
-	707	(align\$4 and (tray carrier) with (hole depression cavity) and vacuum and (mount mounting mounted) and device) and packag\$3	USPAT; EPO; JPO	2004/01/17 17:17
-	348	(align\$4 and (tray carrier) with (hole depression cavity) and vacuum and (mount mounting mounted) and device) and pick\$3 same plac\$3	USPAT; EPO; JPO	2004/01/17 17:17
-	3937	packag\$3 and (tray carrier) with (hole open\$3 cavity) same (device chip)	USPAT; EPO; JPO	2004/01/20 17:23
-	227	(packag\$3 and (tray carrier) with (hole open\$3 cavity) same (device chip)) and pick\$3 same vacuum	USPAT; EPO; JPO	2004/01/20 17:56
-	21	("1835350" "3306439" "3351264" "4573574" "4600936" "4826012" "5103976" "5203452" "5228569" "5246129" "5307011" "5310076" "5335771" "5421455" "5492223" "5547082" "5636745" "5731230" "5848702" "5927503" "6015064").PN.	USPAT	2004/01/20 17:25
-	1	1835350.URPN.	USPAT	2004/01/20 17:28
-	44	JEDEC adj tray	USPAT; EPO; JPO	2004/01/20 18:06
-	8078	tray with hole	USPAT; EPO; JPO	2004/01/20 18:06
-	684	(tray with hole) and packag\$3 and device	USPAT; EPO; JPO	2004/01/20 18:07
-	195	((tray with hole) and packag\$3 and device) and vacuum	USPAT; EPO; JPO	2004/01/20 18:08
-	20	("2174779" "2876161" "3192933" "3881529" "4120948" "4291018" "4364486" "4393643" "4602886" "4743443" "4786449" "4996044" "5089256" "5371131" "5433775" "5503825" "5780018" "5948394" "5965657" "6050540").PN.	USPAT	2004/01/20 18:21
-	4	("4620832" "5337893" "5551572" "5738108").PN.	USPAT	2004/01/20 18:23
-	4	("3235057" "5174428" "5381884" "5680746").PN.	USPAT	2004/01/20 18:25
-	7	5381884.URPN.	USPAT	2004/01/20 18:26
-	0	6283694.URPN.	USPAT	2004/01/20 18:27
-	4	("3235057" "5174428" "5381884" "5680746").PN.	USPAT	2004/01/20 18:27
-	11	5680746.URPN.	USPAT	2004/01/20 18:27
-	9	("2551080" "2932376" "4168776" "4513858" "4565284" "5060454" "5174428" "5494149" "5511651").PN.	USPAT	2004/01/20 18:29
-	52	5467913.URPN.	USPAT	2004/01/20 18:35
-	4	("4558812" "5205896" "5279045" "5284287").PN.	USPAT	2004/01/20 18:37
-	5	("3887996" "4667402" "4859269" "5105255" "5415331").PN.	USPAT	2004/01/20 18:41

-	25	3887996.URPN.	USPAT	2004/01/20 18:42
-	184	chang near rick.xa.	USPAT; EPO; JPO	2004/01/21 11:16
-	3	("4494902" "5203143" "5319846").PN.	USPAT	2004/01/21 11:04
-	49	4494902.URPN.	USPAT	2004/01/21 11:04
-	3	("4494902" "5310301" "5348316").PN.	USPAT	2004/01/21 11:15
-	23	pushing adj pin and vacuum and (tray carrier)	USPAT; EPO; JPO	2004/01/21 11:19
-	103	push\$1 with pin and vacuum and (tray carrier) with (chip device)	USPAT; EPO; JPO	2004/01/21 11:25
-	91	tray same pin with (eject\$3 push\$3) and vacuum and (chip device)	USPAT; EPO; JPO	2004/01/21 12:36
-	21	29/\$.ccls. and fixture and (carrier tray) with (chip device ic) and (pin protrusion) with (push\$3 reject\$3)	USPAT; EPO; JPO	2004/01/21 12:39
-	34	vacuum and fixture and (carrier tray) with (chip device ic) and (pin protrusion) with (push\$3 reject\$3)	USPAT; EPO; JPO	2004/01/21 12:41
-	3740	vacuum with (pad nozzle) and (tray fixture carrier plate) with (hole depression cavity open\$3)	USPAT; EPO; JPO	2004/01/21 12:44
-	1006	(vacuum with (pad nozzle) and (tray fixture carrier plate) with (hole depression cavity open\$3)) and (chip device ic) with (mount\$3 packag\$3)	USPAT; EPO; JPO	2004/01/21 12:45
-	526	((vacuum with (pad nozzle) and (tray fixture carrier plate) with (hole depression cavity open\$3)) and (chip device ic) with (mount\$3 packag\$3)) and (push\$3 eject\$3)	USPAT; EPO; JPO	2004/01/21 12:46
-	453	((vacuum with (pad nozzle) and (tray fixture carrier plate) with (hole depression cavity open\$3)) and (chip device ic) with (mount\$3 packag\$3)) and (push\$3 eject\$3)) and (even\$2 level)	USPAT; EPO; JPO	2004/01/21 12:47
-	19	((vacuum with (pad nozzle) and (tray fixture carrier plate) with (hole depression cavity open\$3)) and (chip device ic) with (mount\$3 packag\$3)) and (push\$3 eject\$3)) and (even\$2 level)) and proper with contact\$3	USPAT; EPO; JPO	2004/01/21 15:08
-	310	(chip ic device) with align\$3 and (tray carrier fixture) and vacuum with (nozzle pad)	USPAT; EPO; JPO	2004/01/21 16:16
-	4	("4651396" "4763941" "6036196" "6260898").PN.	USPAT	2004/01/21 15:09
-	10	4651396.URPN.	USPAT	2004/01/21 15:10
-	133	269/\$.ccls. and vacuum and (chip ic) and align\$3	USPAT; EPO; JPO	2004/01/21 16:37
-	99	294/\$.ccls. and vacuum and (chip ic) and align\$3	USPAT; EPO; JPO	2004/01/21 16:50
-	49	4494902.URPN.	USPAT	2004/01/21 16:41
-	6	("3274038" "3785507" "3793123" "4290732" "4375126" "4410103").PN.	USPAT	2004/01/21 16:43
-	7	("2665603" "3651957" "4135630" "4290732" "4327482" "4340211" "4346514").PN.	USPAT	2004/01/21 16:43
-	25	4473247.URPN.	USPAT	2004/01/21 16:43
-	0	6139078.URPN.	USPAT	2004/01/21 16:46

-	23	("3676911" "4473247" "4553322" "4599037" "4703965" "4705311" "4753004" "4782273" "4822091" "4937511" "4950011" "5038466" "5050919" "5185811" "5207465" "5231753" "5422554" "5572785" "5585979" "5708541" "5734523" "5870820" "5953812").PN.	USPAT	2004/01/21 16:46
-	14	3676911.URPN.	USPAT	2004/01/21 16:48
-	305	414/\$.ccls. and vacuum and (chip ic) and align\$3	USPAT; EPO; JPO	2004/01/21 16:56
-	145	(414/\$.ccls. and vacuum and (chip ic) and align\$3) and (tray carrier)	USPAT; EPO; JPO	2004/01/21 16:50
-	2	4599036.URPN.	USPAT	2004/01/21 16:54
-	86	901/\$.ccls. and vacuum and (chip ic) and align\$3	USPAT; EPO; JPO	2004/01/21 17:29
-	218	(lift\$3 rais\$3) with vacuum and (chip ic) same align\$3	USPAT; EPO; JPO	2004/01/21 18:05
-	17	("3809050" "3811182" "3976288" "4004955" "4046985" "4600936" "4685363" "5605489" "5618759" "5710065" "5803797" "5964646" "6024631" "6165232" "6187654" "6325059" "6448156").PN.	USPAT	2004/01/21 17:32
-	16	("3657508" "4135630" "4151945" "4283847" "4600137" "4998342" "5153981" "5299279" "5369879" "5372972" "5432303" "5479694" "5504988" "5631497" "5646444" "5673479").PN.	USPAT	2004/01/21 17:42
-	7	5270260.URPN.	USPAT	2004/01/21 17:48
-	7	5827394.URPN.	USPAT	2004/01/21 17:50
-	5	("5098501" "5266528" "5270260" "5362681" "5482899").PN.	USPAT	2004/01/21 17:50
-	16	5641714.URPN.	USPAT	2004/01/21 17:52
-	225	(53/397; 414/416; 156/584; 29/743; 29/827; 221/70-74).ccls. and vacuum with (nozzle pad)	USPAT; EPO; JPO	2004/01/21 18:34
-	0	62047146.URPN.	USPAT	2004/01/21 18:27
-	0	62128139.URPN.	USPAT	2004/01/21 18:27
-	5	3089600.URPN.	USPAT	2004/01/21 18:27
-	246	mount\$3 with chip and vacuum and (tray carrier nest) with hole and align\$4	USPAT; EPO; JPO	2004/01/21 18:36

US 6474475 B1	20021105	Apparatus for handling stacked integrated circuit devices	206/725	Bjork, Russell S.
US 6555417 B2	20030429	Method and device for protecting micro electromechanical system structures during dicing of a wafer	438/113	Spooner, Timothy R. et
US 6283694 B1	20010904	Method and device for the alignment of products	414/416.05	Spatafora, Mario et al.
US 6204092 B1	20010320	Apparatus and method for transferring semiconductor die to a carrier	438/113	Freund, Joseph M. et al
US 6202853 B1	20010320	Secondary processing for electrical or mechanical components molded to continuous carrier supports	206/713	Bianca, Giuseppe et al.
US 6095405 A	20000801	Method for soldering integrated circuits	228/180.21	Kim, Choul-su et al.
US 4872825 A	19891010	Method and apparatus for making encapsulated electronic circuit devices	425/117	Ross, Milton I.
US 3590462 A	19710706	METHOD AND APPARATUS FOR EXPANDING AN ARRAY OF ARTICLES	29/559	Mracek, Jaroslav
US 5966903 A	19991019	High speed flip-chip dispensing	53/397	Dudderar, Thomas Dix
US 5876549 A	19990302	Method and apparatus for stacking sheets supported by carriers	156/249	Natarajan, Govindaraja
US 5628660 A	19970513	Bonding apparatus and bonding method of devices	445/24	Onitsuka, Yasuto
US 5635832 A	19970603	IC carrier for use with an IC handler	324/158.1	Ito, Akihiko et al.
US 5467913 A	19951121	Solder ball supply device	228/41	Namekawa, Masatoshi
US 5093984 A	19920310	Printed circuit board loader/unloader	29/741	Lape, Larry J.
US 4893403 A	19900116	Chip alignment method	29/840	Heflinger, Bruce et al.
US 6230896 B1	20010515	Universal shipping tray	206/722	Lambert, Donald L.
US 6135291 A	20001024	Vertical magazine method for integrated circuit device dispensing, receiving, storing, testing or binning	209/573	Canella, Robert L.
US 6112940 A	20000905	Vertical magazine apparatus for integrated circuit device dispensing, receiving or storing	221/198	Canella, Robert L.
US 5680746 A	19971028	Pick and place system	53/475	Hornisch, Frank
US 5415331 A	19950516	Method of placing a semiconductor with die collet having cavity wall recess	228/213	Lin, Peng-Cheng
US 5105255 A	19920414	MMIC die attach design for manufacturability	257/773	Shannon, Michael J. et



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14	<input type="checkbox"/>	<input checked="" type="checkbox"/>	US 4951383 A	19900828	42	Electronic parts automatic mounting apparatus	29/721	29/740; 29/743;
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17	<input type="checkbox"/>	<input checked="" type="checkbox"/>	JP 03089600 A	19910415	4	CHIP PARTS MOUNTING APPARATUS		29/740; 29/743
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21	<input type="checkbox"/>	<input checked="" type="checkbox"/>	US 6305729 B1	20011023	21	Apparatus for transferring pieces of optical glass	294/64.1	414/752.1; 901/40
22	<input type="checkbox"/>	<input checked="" type="checkbox"/>	US 6213709 B1	20010410	22	Egg removal apparatus	414/737	294/64.1; 294/65
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24	<input type="checkbox"/>	<input checked="" type="checkbox"/>	US 6201306 B1	20010313	38	Push-up pin of a semiconductor element	257/783	228/102; 228/6.2;

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